

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference TF-P2031PC00/004	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/50230	International filing date (day/month/year) 16.06.2003	Priority date (day/month/year) 28.06.2002
International Patent Classification (IPC) or both national classification and IPC C14C3/16		
Applicant TFL LEDERTECHNIK GMBH et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12.12.2003	Date of completion of this report 13.04.2004
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized Officer Neugebauer, U Telephone No. +49 89 2399-6075



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/50230**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-35 as originally filed

Claims, Numbers

1-18 as originally filed

Claims, Pages

39 received on 10.03.2004 with letter of 08.03.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	1-18
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: WO 00 77292 A (cited in the application)

1. Novelty (Art. 33(2) PCT)/ Inventive step (Art. 33(3) PCT)

The subject-matter of claims **1-18** is regarded as novel over the prior art documents cited in the International Search Report and the application (Art. 33 (2) PCT), since none of the cited documents discloses a process for the treatment of leathers or skins, pretreated with dialdehydes and retanned with organic tanning agents, with anionic reagents in aqueous solution in which a) either an anionic reagent together with a polyamine having at least three amino groups or reaction products of such polyamines with alkylsilane(s) are added to the liquor for reaction on the leather or b) the leather is first treated with anionic reagents and subsequently with said polyamines or said reaction products or c) the leather is first treated with said polyamines or said reaction products and then the anionic reagents react on the treated leathers or skins.

The subject-matter of present claims **1-18** is based upon an inventive step, since there is no hint in document D1, which is considered to represent the closest prior art, alone or in combination with any other document cited in the International Search Report for the claimed compositions and methods for the following reasons:

Document D1 discloses a process for treating leather with amino-functionalized silane or siloxane in aqueous medium.

The subject-matter of present process claim **1** differs from D1 in the chemical reagents comprising an anionic reagent and an organic polyamine with three or more amino groups or mixtures of reaction products of said polyamines with alkylsilane(s) and in the the dialdehydic pretanned leathers or skins treated therewith.

The technical problem consists in the provision of leathers, pretanned with dialdehydes and retanned with organic compositions, with improved fastness to perspiration.

This problem is solved by the process as mentioned above, as leather with very good wet fastness is obtained when "wet white crust" leather is dyed with an anionic dye and subsequently treated with a reaction product of an oligomeric ethylenamine with 1-

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trimethoxysilyl-3-glycidyloxypropane (see example A1 and use example B1).
Since there is no teaching in any other document for the claimed process, the presence of an inventive step can be acknowledged.

2. Industrial Applicability (Art. 33(4) PCT)

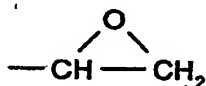
The present invention deals with a process for the treatment of leathers or skins pretanned with dialdehydes and is thus useful in industries.

15. Process according to Claim 14, characterized in that the functional silane corresponds to the formula VI,



in which

R_{13} is C_1 - C_4 alkyl and in particular methyl, R_{14} is $-(CH_2)_3-O-CH_2-$ and X_1 is an epoxide group of the formula



or R_{14} is C_2 - C_6 alkylene and X_1 is $-NCO$ or $-C(O)OR_{15}$, in which R_{15} is hydrogen or C_1 - C_4 alkyl.

16. Process according to Claim 15, characterized in that the amount of functional alkylsilanes in the composition with the polyamine is preferably from 1 to 60% by weight, based on the total amount of polyamine and functional alkylsilane.

17. Process according to Claim 1, characterized in that the polyamine or the mixture or reaction product of polyamine and alkylsilane is used in an amount of from 0.1 to 30% by weight, based on the shaved weight of the fibrous material.

18. Process according to Claim 1, which is carried out at from room temperature to $60^\circ C$.

~~19. Composition comprising (a) at least one low molecular weight, oligomeric or polymeric polyamine having at least 3 amino groups and (b) at least one alkylsilane having organic oxy radicals bonded to the silicon atom and a functional group bonded to the alkyl group, said functional group being capable of forming a covalently bonded bridging group with an amino group of the polyamine.~~

20. Composition according to Claim 19, characterized in that the amount of functional alkylsilanes in the composition is from 1 to 60% by weight, based on the total amount of polyamine and functional alkylsilane.

~~21. Reaction product obtainable by reacting (1) at least one organic polyamine which has at least three amino groups in the molecule with (2) at least one alkylsilane having organic oxy radicals bonded to the silicon atom and a functional group bonded to the alkyl group, so that~~